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Mark Gibson

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EXAMINER

ALVESTEFFER, STEPHEN D

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/806,571	Applicant(s) GIBSON ET AL.	
	Examiner Stephen Alvesteffer	Art Unit 2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Response filed February 8, 2008. No claims were amended. Claims 1, 18, and 20 are independent. Claims 1-22 remain pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 7-12, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Maudlin, United States Patent Application Publication number 2004/0075697.

Regarding claim 1, Maudlin teaches a computer-implemented method for selecting an obscured object in a three-dimensional computer-generated model, the method comprising: displaying the three-dimensional computer-generated model on a computer screen, wherein: the three-dimensional computer-generated model consists of a plurality of objects used to construct a part (see paragraph [0051]; “*Once the three-dimensional model, or portions thereof, is/are transmitted to the client 14, the user can*

Art Unit: 2175

navigate through and interact with the three-dimensional model", the three-dimensional model consists of several portions); a first set of the plurality of objects when displayed obscures a second set of the plurality of objects (see paragraph [0065]; "Hiding portions, for example buildings, of model 54 allows a user to see additional sections of model 54 which may otherwise be obstructed", portions of the three-dimensional model are obstructed by other portions of the three-dimensional model); the first set of the plurality of objects comprises at least one face (see paragraph [0040]; "photographs are trimmed and processed to be used as the visible surface or "skin" of the architectural structure in the final three-dimensional model. A photorealistic model is generated by applying these skins to the surfaces of the architectural structures", the surface is functionally equivalent to the face); and the second set of the plurality of objects comprises at least one face (the surface is functionally equivalent to the face); receiving first input data interpreted as an instruction to change a visibility characteristic of a first one of the first set of the plurality of objects, the first one of the first set identified upon receiving the first input data and by determining that the first one of the first set shares a same location on the computer screen as a cursor (see paragraph [0065]; "In FIG. 14, the building 130 of the model 54 is selected by "clicking" on or otherwise selecting an area of the building 130. An indicator box 142 appears centrally located on the selected building 130 to indicate that the building 130 has been selected. Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause

the selected portion of the model 54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15"); automatically modifying the visibility characteristic of the first one of the first set to cause a first one of the second set of the plurality of objects to be discernable (see paragraph [0065]; "Sections of the model 54 that were obstructed from the user's view by the selected portion of the model 54 are now viewable with the selected portion of the model 54 hidden"); receiving second input data interpreted as an instruction to select the first one of the second set of the plurality of objects, the first one of the second set identified upon receiving the second input data and by determining that the first one of the second set shares the same location on the computer screen as the cursor (see paragraph [0067]; "For easier viewing, the user may hide the layer of the model 54 which contains the streets of the model 54 as mentioned above. Once the waterlines 164 are displayed, a user may "click" on or otherwise select a portion of the waterlines 164 to display data, such as GIS data, associated with the water lines 164, as shown in FIG. 23"); and designating the first one of the second set of the plurality of objects as a first selected object (see paragraph [0067]; after a layer is hidden, the underlying objects may be selected).

Regarding claim 3, Maudlin teaches that modifying the visibility characteristic automatically causes the first one of the first set of the plurality of objects to become invisible (see paragraph [0065]; "Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause the selected portion of the model

54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15", the hidden object is not visible on the display).

Regarding claim 4, Maudlin teaches that modifying the visibility characteristic automatically causes the removal of the first one of the first set of the plurality of objects from a display structure used for constructing the computer-generated model (see paragraph [0065]; *"Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause the selected portion of the model 54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15", the hidden object is removed from the display).*

Regarding claim 7, Maudlin teaches that a pointing device generates the first input data; and the pointing device generates the second input data (see paragraph [0037]; *"The user may select the portion or portions of the displayed model that the user desires information on by touching a particular key or "clicking" on the displayed image with an input device such as a mouse").*

Regarding claim 8, Maudlin teaches that the pointing device is a mouse device (see paragraph [0037]; *"The user may select the portion or portions of the displayed model that the user desires information on by touching a particular key or "clicking" on the displayed image with an input device such as a mouse").*

Regarding claim 9, Maudlin teaches that the three-dimensional computer-generated model is a solid model; and the first one of the first set of the plurality of

objects is a face. Maudlin teaches that the computer-generated model is a “solid model” according to the definition provided by the first paragraph of page 1 of the instant application. Maudlin’s invention is capable of treating each object in the model as a separate face or surface, or grouping adjacent faces or surfaces into separate layers (see paragraph [0066]).

Regarding claim 10, Maudlin teaches that the first one of the second set of the plurality of objects is one of a face, an edge, a vertex, and a surface. Maudlin’s invention is capable of treating each object in the model as a separate face or surface, or grouping adjacent faces or surfaces into separate layers (see paragraph [0066]).

Regarding claim 11, Maudlin teaches that the three-dimensional computer-generated model is a solid model; the first one of the first set of the plurality of objects is one of a vertex or an edge; the first one of the second set of the plurality of objects is a first face adjacent to the first one of the first set of the plurality of objects; and further comprising: automatically modifying a visibility characteristic of a second face adjacent to the first one of the first set of the plurality of objects automatically causing at least one of the plurality of objects positioned behind the second face to be visible. Maudlin teaches that the computer-generated model is a “solid model” according to the definition provided by the first paragraph of page 1 of the instant application. Maudlin’s invention is capable of treating each object in the model as a separate face or surface, or grouping adjacent faces or surfaces into separate layers (see paragraph [0066]).

Regarding claim 12, Maudlin teaches that subsequent to designating the first one of the second set of the plurality of objects as a first selected object, automatically

reverting the first one of the first set of the plurality of objects to an initial visibility state. Maudlin teaches that a hidden object can later be unhidden (see paragraph [0065]).

Regarding claim 20, Maudlin teaches a digital computer comprising: a memory, data stored in said memory, and control information stored in said memory (see paragraph [0015]; “...includes a processor and a memory device electrically coupled to the processor. The memory device has stored therein a plurality of instructions which, when executed by the processor, cause the processor to generate a three-dimensional model of an architectural structure”); and a data processor for processing said data in accordance with said control information (see paragraph [0015]; “...includes a processor and a memory device electrically coupled to the processor. The memory device has stored therein a plurality of instructions which, when executed by the processor, cause the processor to generate a three-dimensional model of an architectural structure”); wherein, said control information is arranged to: process a data structure defining a three-dimensional model comprised of a plurality of entities used to generate a representation of a real-world three-dimensional object, wherein each one of the plurality of entities is one of a vertex, an edge, a face, and a surface (see paragraph [0040]; “photographs are trimmed and processed to be used as the visible surface or “skin” of the architectural structure in the final three-dimensional model. A photorealistic model is generated by applying these skins to the surfaces of the architectural structures”); receive first input data generated by a button used in conjunction with a pointing device controlling a location of a cursor, wherein the first input data is interpreted as a command to make one of the plurality of entities invisible (see

paragraph [0065]; *"In FIG. 14, the building 130 of the model 54 is selected by "clicking" on or otherwise selecting an area of the building 130. An indicator box 142 appears centrally located on the selected building 130 to indicate that the building 130 has been selected. Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause the selected portion of the model 54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15"*); automatically suppress display of a first one of the plurality of entities positioned beneath the cursor when the first input data was received while continuing to display other ones of the plurality of entities (see paragraph [0065]; *"Hiding portions, for example buildings, of model 54 allows a user to see additional sections of model 54 which may otherwise be obstructed"*); receive second input data generated by the button, wherein second input data is interpreted as a command to select one of the other ones of the plurality of entities (see paragraph [0067]; *"For easier viewing, the user may hide the layer of the model 54 which contains the streets of the model 54 as mentioned above. Once the waterlines 164 are displayed, a user may "click" on or otherwise select a portion of the waterlines 164 to display data, such as GIS data, associated with the water lines 164, as shown in FIG. 23"*); and designate a second one of the plurality of entities as a selected entity, the second one designated upon receiving the second input data and determining that the second one shares a common location with the cursor (see paragraph [0067]; after a layer is hidden, the underlying objects may be selected).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maudlin (2004/0075697) *supra* and Gordon, United States Patent number 7,043,701.

Regarding claim 2, Maudlin teaches all the limitations of claim 2 except that modifying the visibility characteristic automatically causes the first one of the first set of the plurality of objects to become transparent and discernable. However, Gordon teaches reducing the opacity of selected objects in the three-dimensional representation (see Gordon column 5 lines 44-67; *"In order to enhance the user's perception of display depth and provide better workspace organization, the opacity level of the house container object 810 is reduced in response to the user selecting it, revealing content objects 820 within container object 810"*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the opacity, as taught by Gordon, of selected three-dimensional objects in the interface, such as that taught by Maudlin, in order to enhance the user's perception of display depth and provide better workspace organization (see Gordon column 5 lines 50-52).

Claims 5, 6, 13, 14, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maudlin (2004/0075697) *supra* and Arnold, United States Patent number 6,812,940.

Regarding claim 5, Maudlin teaches all the limitations of claim 5 except that designating the first one of the second set of the plurality of objects comprises highlighting the first one of the second set of the plurality of objects. However, highlighting selected items was well known in the art at the time the invention was made. Arnold teaches displaying a border around a selected object to highlight it to the users (see Arnold column 3 lines 44-59; “*A user may select any one of the blocks 301 to 308 using the joystick device. As the joystick device is pushed, the block which corresponds to the direction in which the joystick device was pushed is highlighted*”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to highlight a selected item when it is selected in order to indicate to the user that which was selected.

Regarding claim 6, Arnold teaches that highlighting the first one of the second set of objects comprises one of displaying a border of the first one of the second set of the plurality of objects and changing a color of the first one of the second set of the plurality of objects (see Arnold column 3 lines 44-59; “*Highlighting may take the form of inverting the pixels representing that block, displaying a border around the block, or such like*”, inverting the pixels representing the block involves changing the color of the selected object).

Regarding claim 13, Maudlin teaches receiving third input data interpreted as an instruction to select a second one of the second set of the plurality of objects, the second one of the second set identified upon receiving the third input data and by determining that the second one of the second set shares the same location on the computer screen as the cursor; and highlighting the second one of the second set of the plurality of objects for distinguishing the second one of the second set as a second selected object (see Arnold column 3 lines 44-59; “*A user may select any one of the blocks 301 to 308 using the joystick device. As the joystick device is pushed, the block which corresponds to the direction in which the joystick device was pushed is highlighted*”). Maudlin teaches that when an object is selected, an indicator box appears on the object to indicate that the item is selected. The steps can be repeated to select and change the visibility of other subsequent objects (see paragraph [0065]).

Regarding claim 14, Maudlin teaches receiving third input data interpreted as an instruction to change a visibility characteristic of a second one of the first set of the plurality of objects, the second one of the first set identified upon receiving the third input data and by determining that the second one of the first set shares the same location on the computer screen as the cursor (see paragraph [0067]; “*For easier viewing, the user may hide the layer of the model 54 which contains the streets of the model 54 as mentioned above. Once the waterlines 164 are displayed, a user may “click” on or otherwise select a portion of the waterlines 164 to display data, such as GIS data, associated with the water lines 164, as shown in FIG. 23*”); automatically modifying the visibility characteristic of the second one of the first set of the plurality of

objects to reveal a second one of the second set of the plurality of objects positioned behind the second one of the first set; receiving fourth input data interpreted as an instruction to select a second one of the second set of the plurality of objects, the second one of the second set identified upon receiving the fourth input data and by determining that the second one of the second set shares the same location on the computer screen as the cursor; designating the second one of the second set of the plurality of objects as a second selected object; and highlighting the second one of the second set of the plurality of objects to visually indicate the designation as a second selected object (see paragraph [0065]; Maudlin teaches that when an object is selected, an indicator box appears on the object to indicate that the item is selected. The steps can be repeated to select and change the visibility of other subsequent objects).

Regarding claim 16, Maudlin teaches that automatically modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the second one of the first set to become invisible (see paragraph [0065]; *"In FIG. 14, the building 130 of the model 54 is selected by "clicking" on or otherwise selecting an area of the building 130. An indicator box 142 appears centrally located on the selected building 130 to indicate that the building 130 has been selected. Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause the selected portion of the model 54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15"*).

Regarding claim 17, Maudlin teaches that automatically modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the removal of the second one of the first set from a display structure used for constructing the computer-generated model (see paragraph [0065]; *"In FIG. 14, the building 130 of the model 54 is selected by "clicking" on or otherwise selecting an area of the building 130. An indicator box 142 appears centrally located on the selected building 130 to indicate that the building 130 has been selected. Once the user has selected the portion of the model 54 to be hidden, for example building 130, the user may "click" on or otherwise select a hide button 144 which is illustratively located on the toolbar 134 associated with a 3D Tools tab 136. Selecting the hide button 144 will cause the selected portion of the model 54, i.e. the building 130, to be hidden from the user's view, as shown in FIG. 15"*).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maudlin (2004/0075697) *supra*, Arnold (6,812,940) *supra*, and Gordon (7,043,701) *supra*.

Regarding claim 15, Maudlin and Arnold teach all the limitations of claim 15 except that automatically modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the second one of the first set to become transparent and discernable. However, Gordon teaches reducing the opacity of selected objects in the three-dimensional representation (see Gordon column 5 lines 44-67; *"In order to enhance the user's perception of display depth and provide better workspace organization, the opacity level of the house container object 810 is reduced*

in response to the user selecting it, revealing content objects 820 within container object 810"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the opacity, as taught by Gordon, of selected three-dimensional objects in the interface, such as that taught by Maudlin and Arnold, in order to enhance the user's perception of display depth and provide better workspace organization (see Gordon column 5 lines 50-52).

Claims 18, 19, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maudlin (2004/0075697) *supra*, Arnold (6,812,940), and Schell et al. (hereinafter Schell), United States Patent number 6,628,279.

Regarding claims 18 and 19, the combination of Maudlin and Arnold teach all the limitations of claims 18 and 19 except the selection of edges and faces, where edges are highlighted by changing the line texture and faces are highlighted by changing the color. Schell teaches a three-dimensional modeling system where edges and faces can be selected (see column 5, lines 36-55) and selected edges are shown as dotted lines (see column 23, lines 12-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the inventions of Maudlin, Arnold, and Schell in order to create an intuitive user interface for selecting three-dimensional objects.

Claims 21 and 22 recite a digital computer performing method steps substantially the same as the method steps of claim 19. Therefore, claims 21 and 22 are rejected under the same rationale.

Response to Arguments

Applicant asserts that Maudlin does not teach or suggest hiding the "surface" of a 3D object. The examiner respectfully disagrees.

As a preliminary point, the "model" taught by Maudlin is being viewed as equivalent to the "three-dimensional computer-generated model" of the instant application, and each selectable item such as a building or layer of Maudlin is being viewed as equivalent to one object of the plurality of objects recited by the instant application. Applicant is interpreting each individual building of Maudlin as being a separate "three-dimensional computer-generated model", when each building as described by Maudlin is actually only a portion of the three dimensional model.

Maudlin's invention does allow hiding only a portion of a three dimensional model so that obscured objects can be viewed and selected. Maudlin teaches hiding only portions of the three dimensional model at length in paragraph [0065], "*The user may also alter the view of the section of the three-dimensional model of the architectural structure 54 by hiding portions of the model 54. Hiding portions, for example buildings, of model 54 allows a user to see additional sections of model 54 which may otherwise be obstructed*". While Maudlin admittedly teaches a different usage of the invention than the Applicants' invention, the claims of the instant invention, as presently recited, are still seen as being anticipated by Maudlin.

Applicant further asserts that Maudlin does not teach or suggest the limitation of “automatically suppress display of a first one of the plurality of entities positioned beneath the cursor when the first input data was received while continuing to display other ones of the plurality of entities” as required by claim 20 of the instant invention. The examiner respectfully disagrees.

Here, an "entity" as recited is seen as equivalent to a selectable object as taught by Maudlin. Selectable objects can be buildings or layers, each of which is taught by Maudlin as capable of being hidden (see paragraphs [0065] and [0066]). As established above, the three dimensional model taught by Maudlin is not an individual building, but rather the three dimensional scene including all buildings and layers.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Alvesteffer whose telephone number is (571)270-1295. The examiner can normally be reached on Monday-Friday 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Bashore can be reached on (571)272-4088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen Alvesteffer
Examiner
Art Unit 2175

/S. A./
Examiner, Art Unit 2175

/William L. Bashore/
Primary Examiner, Art Unit 2175